



2010 SRS

16th ANNUAL

***SUNY NEW PALTZ
STUDENT RESEARCH
SYMPOSIUM***

ABSTRACT BOOK

*16th ANNUAL
SUNY NEW PALTZ
STUDENT RESEARCH SYMPOSIUM*

**Friday, April 30, 2010
Quiet Study Hall, Library
4:00- 6:00 p.m.**

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Sponsored by:
The SUNY New Paltz Research, Scholarship
and Creative Activities program

Editor and Cover Design:
Maureen Morrow, RSCA Director

The 2010 Student Research Symposium

Once again, as the academic year comes to a close, we have this opportunity for scholarly exchange amongst our faculty and students. The 2010 Student Research Symposium will include 60 poster presentations of work performed by 80 students representing 21 departments. This is an occasion for us to share our accomplishments in a spirit of camaraderie.

The Student Research Symposium is sponsored by the Research, Scholarship and Creative Activities (RSCA) Program. The mission of the RSCA program is to encourage and support student- faculty collaboration in the active participation of scholarly and artistic activities that generate new knowledge or works.

Such activities enable students to gain knowledge, skills, and confidence to contribute as productive members of their professions and contribute to a learning environment which is challenging, student-centered, and personalized.

Acknowledgements

The following people have provided generous support of this event:

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The RSCA Advisory Board:

Giordana Grossi (Psychology), Megan Coder (Library),
Preeti Dhar (Chemistry), Robin Arnold (Art), Jed Mayer (English),
Kate McCoy (Educational Studies), Joel Neuman (Business)

Welcome to the Student Research Symposium

Among our chief goals for New Paltz students are that they will forge close ties with faculty mentors and prepare themselves for a lifetime of engaged learning. The opportunity to participate in research in a meaningful way gives students a deeper understanding of their discipline and can often assist them in discovering their future career paths. We know that many will choose to attend graduate or professional school because of these experiences. This is why I'm so proud about the growing numbers of undergraduates involved in research projects with faculty.



Our student research initiative provides wonderful ways for students to push beyond the boundaries of their knowledge and to see just how talented they are as researchers and junior scientists. But surely the most enduring aspect of their research will be the bonds that they forge with faculty who will be intellectual guides and friends for the rest of their lives. I salute all of the students and faculty who have given so selflessly of themselves to make this program work—and who embody New Paltz at its best.

Steven G. Poskanzer, President

Student research participation is one of several “high-impact” educational practices known to produce especially deep and meaningful learning. Such projects require that students devote time and effort to purposeful tasks; make frequent decisions about their work; interact with faculty (and sometimes peers) about their work; and receive frequent feedback about performance. Such experiences deepen understanding of the substance and methodology of a discipline, and provide opportunities to refine and demonstrate problem-solving, analytical, and communication skills. Overcoming the challenges inherent in many successful research projects yields a healthy combination of meaningful confidence and appropriate humility.



Research participation is certainly valuable (indeed, essential) for students considering graduate education and research careers. But these experiences are directly relevant in the education of all students, irrespective of future goals. Recent surveys sought employer opinions about the kinds of experiences they find valuable in producing the knowledge and capability they seek in college-educated new employees. Over 80% value completion of a research or similar project that demonstrates knowledge in the major along with analytical, problem-solving, and communication capability. Over 80% value experiences that help students develop skills to research questions in their field and to develop evidence-based analyses. The capabilities and perspectives gained through research are broadly transferrable, and are in demand both within and outside of academia.

Successful undergraduate research programs like ours depend on the dedication, disciplinary knowledge, and research and scholarly expertise of faculty. I recognize the commitment of time and effort by faculty who have mentored and advised student research and scholarly projects, and I am grateful for your important contributions. I know that in many ways this is a “labor of love,” and how rewarding and long-lasting are the intellectual relationships you build with research advisees. I also acknowledge the many important contributions of the advisory committee and campus-wide coordinator (Professor Maureen Morrow) in managing our funding-allocation processes, advising students, organizing events such as this symposium, and many other responsibilities.

Finally, I congratulate students and faculty both for your hard work and your success in projects this past year, and wish you continuing success and fulfillment in the future.

Donald Christian, Provost and Professor of Biology

On behalf of the Research, Scholarship, and Creative Activities Advisory Board, I would like to welcome you to the 2010 Student Research Symposium. This event is the 16th consecutive celebration of student-faculty scholarship at SUNY New Paltz.



As you are aware, the process of producing scholarship through research and/or creative activities is both difficult and exciting. I am certain the faculty- student interactions you experienced in this process were unique and stimulating. Please know that these experiences are a rewarding part of the job of a college professor; so do stay in touch after you have graduated. It brings us all great joy and inspiration to hear of your post- New Paltz adventures and successes.

I hope this event brings you fulfillment in presenting the results of your work and inspiration from your fellow students' accomplishments.

Maureen Morrow, RSCA Director and Associate Professor of Biology

Photo credits:

President Poskanzer by Marlis Momber

Provost Christian by the Office of Public Affairs

Maureen Morrow by Christopher Pryslopsi

Research, Scholarship and Creative Activities Program

Faculty-student collaborators may propose projects for support through the Summer Undergraduate Research Experience (SURE) and Academic Year Funds programs (AYURE). Both of these programs are competitive and are selected for support by a faculty committee. Congratulations to all of this year's award recipients (see pages 40-41).

SUMMER UNDERGRADUATE RESEARCH EXPERIENCE

The focus of the SURE program is to encourage intensive student participation in an aspect of faculty research. Each student participant is supported with a stipend for the 8-week summer project and is expected to devote at least 35 hours per week to the project. Faculty mentors direct and provide guidance to participating students as they work on a particular aspect of the faculty's research program. As a goal of this program is to encourage ongoing faculty-student collaboration, and thus students are encouraged to continue working on the project during subsequent semesters.

ACADEMIC YEAR FUNDS

This program supports student- faculty collaborations on projects that span the disciplines. Projects that generate new knowledge or works are eligible for support. Funds for supplies and support of the research, scholarship or creative activities are provided through this program.

STUDENT CONFERENCE TRAVEL AWARD

The RSCA program supports students to present the results of the collaborative work at professional conferences. Mentors are also supported for travel with the student.

WE ARE ON FACEBOOK



Join the SUNY New Paltz RSCA group
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For more information, please visit our web page: www.newpaltz.edu/studentresearch. You may also contact: Maureen Morrow, Director, Undergraduate RSCA morrowm@newpaltz.edu 257-3776

The New Paltz Student Association also has research and conference travel funds available for both graduate and undergraduate students.

A list of apparently current journals that focus on publishing undergraduate research

(most have copy write transfer agreements so you can also publish in a print journal)

Valley Humanities Review is currently seeking essays in the humanities for publication in its Spring 2010 Issue. Please visit <http://www.lvc.edu/vhr> for more information.

Stanford Undergraduate Research Journal is an annual peer-reviewed publication of research articles written primarily by Stanford undergraduates, but also well-qualified students at other institutions, from all academic fields. <http://www.stanford.edu/group/journal/index.html>

Pittsburgh Undergraduate Review PUR is a multidisciplinary journal that accepts papers from around the world. <http://136.142.181.181/~pur/index.php>

Undergraduate Journal for Global Business and Community, offers undergraduate students a venue for publishing works <http://jgbc.fiu.edu/index.html>

The Dialectics Undergraduate Journal of Leadership, Politics, and Society aim is to promote undergraduate discourse and scholarship and to encourage students to pursue and engage in thoughtful discourses on topics of societal importance. <http://www.abington.psu.edu/dialectics/index.html>

Pi Sigma Alpha Undergraduate Journal of Politics built a reputation for publishing outstanding research by undergraduate students. <http://web.ics.purdue.edu/~psalpha/journal/call.html>

Issues in Political Economy is committed to supporting and encouraging quality undergraduate research in all areas of economics. <http://www.elon.edu/e-web/students/ipe/journalinfo.xhtml>

Undergraduate Economic Review aimed at promoting high quality undergraduate research <http://titan.iwu.edu/%7Eecon/uer/index.html>

Critique provides a forum for graduate and undergraduate students of politics to express and exchange diverse ideas and to imagine new possibilities for democracy and justice <http://lilt.ilstu.edu/critique/default.htm>

Michigan Journal of Political Science The Michigan Journal of Political Science (MJPS) is one of the premier undergraduate political science journals in the country. <http://www.umich.edu/~mjps/>

Journal of Science and Health at the University of Alabama - JOSHUA includes topics with societal or ethical implications, emerging methodologies or fields, et cetera. <http://www.bama.ua.edu/~joshua/index.htm>

The Penn Bioethics Journal is the nation's premier peer-reviewed undergraduate bioethics journal. <http://bioethicsjournal.com/about.html>

BIOS to publish their undergraduate biology work <http://www.tri-beta.org/publish.html>

IMPULSE is the first international, online neuroscience journal for undergraduate publications. <http://impulse.appstate.edu/>

The Indiana Undergraduate Journal of Cognitive Science invites submissions of original writing by undergraduate students. Submissions may come from any area within Cognitive Science <http://www.cogs.indiana.edu/icogsci/instructions.html>

Undergraduate Research Journal for the Human Sciences The URC Undergraduate Research Journal is an annual online national, reviewed journal dedicated to the publication of undergraduate student research. The twofold purpose of the journal is to foster and reward the scholarly efforts of undergraduate human sciences students as well as to provide a valuable learning experience.

http://www.kon.org/CFP/cfp_urjhs.html

Journal of Psychological Inquiry We are proud to be one of the few journals to accept contributions exclusively from undergraduate students. <http://jpi.morningside.edu/index.htm>

The Undergraduate Psychology Journal (UPJ) at the University of California Los Angeles is a publication which features outstanding research work performed by undergraduate students at UCLA and around the country <http://www.studentgroups.ucla.edu/upj/>

The Yale Review of Undergraduate Research in Psychology is an annual journal that showcases the best and most original research in psychology conducted by undergraduates from around the world.

<http://www.yale.edu/yrurp/>

Psi Chi Journal of Undergraduate Research a national, fully reviewed, quarterly journal dedicated to the publication of undergraduate psychology student research. <http://www.psichi.org/pubs/journal/default.aspx>

Caltech Undergraduate Research Journal

http://www.topgrad.com/caltech_undergraduate_research_journal.htm

The Caltech Undergraduate Research Journal (CURJ) publishes the best undergraduate research submissions from around the world in the form of science news and feature articles.

Journal of Young Investigators JYI's web journal (which is also called JYI) is dedicated to the presentation of undergraduate research in science, mathematics, and engineering. <http://www.jyi.org/about/>

Morehead Journal of Applicable Mathematics MEJAM accepts papers which are outside the realm of the typical undergraduate curriculum and which emphasize the applicability of mathematics while maintaining significant mathematical interest. <http://www.moreheadstate.edu/mejam/index.aspx?id=5096>

Rose-Hulman Undergraduate Mathematics Journal is devoted entirely to papers written by undergraduates on topics related to mathematics <http://www.rose-hulman.edu/mathjournal/index.php>

National Undergraduate Research Clearinghouse Any scientific manuscript. They can be empirical studies or literature reviews. <http://www.webclearinghouse.net/help.php>

Journal of Undergraduate Chemistry Research is a new peer review journal that will be published quarterly with papers of original research performed by undergraduates.

http://www.vmi.edu/show.aspx?tid=36955&id=2214&ekmense1=8f9c37c3_156_160_2214_3

Journal of Undergraduate Research in Physics is a peer-reviewed journal of the Society of Physics Students (SPS) for archiving research conducted by undergraduate physicists.

http://www.jurp.org/call_for_papers.html

The Journal of Undergraduate Research in Physics (JURP) is a peer-reviewed, online journal of the Society of Physics Students (SPS) and Sigma Pi Sigma, the physics honor society http://www.jurp.org/about_jurp.html

American Journal of Undergraduate Research A refereed journal for undergraduate research in the pure and applied sciences, mathematics, engineering, technology, and related areas in education.

<http://www.ajur.uni.edu/>

Catalyst: Rice Undergraduate Science and Engineering Review <http://catalyst.rice.edu/> Submissions for reviews will be accepted from undergraduate students who have performed science or engineering research at any international university or research institution laboratory.

History Matters An Undergraduate Journal of Historical Research
<http://www.historymatters.appstate.edu/index.html>

The Allegheny Review, now going into its 27th year of publication, is one of America's few nationwide literary magazines dedicated exclusively to undergraduate works of poetry, fiction, creative nonfiction, and art <http://webpub.allegheny.edu/group/review/info.html>

The Oswald Review An International Journal of Undergraduate Research and Criticism in the Discipline of English <http://www.usca.edu/english/pubs/oswald/oswald.html>

Young Scholars in Writing: Undergraduate Research Young Scholars in Writing: Undergraduate Research in Writing and Rhetoric, a peer-reviewed journal for undergraduates.

<http://cas.umkc.edu/english/publications/youngscholarsinwriting/index3.html>

Poster session 1

4:15-4:50p

FASHION AS PROPAGANDA IN THE FRENCH REVOLUTION Caryn Schuster (Art History, undergraduate)

PRIVATE AND PUBLIC IN ANDY WARHOL'S PHOTOGRAPHY Lauren Levine (Art History, undergraduate)

PURIFICATION OF NUCLEAR RECEPTOR PROTEIN CONSTRUCT Aaron Reed (Biology, undergraduate)

NEW MACROCYCLES AS CHIRAL SHIFT REAGENTS Thomas Quinn (Biology, undergraduate)

AN EVOLUTION OF THE PHARMACY Kelcey Noble (Biology, undergraduate)

MARINE BACTERIA IN SOUTH PACIFIC CORAL REEFS Denni Catalano

FLUORESCENCE ASSAY FOR RECEPTOR-LIGAND BINDING Raneen Rahhal, Xia Weng (Biology, undergraduate)

ANALYSIS OF THE WORKFLOW OF PHYSICIANS' ROUNDS Molly Duguid, Chih-Yang Tsai, Paul Pancoast, Naila Shereen, Christine Seward, Renju Vattasseril (School of Business, undergraduate)

ACYLHYDRAZONE EQUILIBRIUM CONSTANT IN WATER BY NMR Tyler Moore (Chemistry, undergraduate)

SYNTHESIS OF DIAMINOCYCLOHEXANE BASED MACROCYCLES Philip Atwood (Chemistry, undergraduate)

IS FYI CORRELATED WITH HIGHER RETENTION AND GPA? Jessie Ostrow (Communication, undergraduate)

MAKING AN OPERATING SYSTEM Younghyuk Kim (Computer Science, graduate)

THE FEDERAL RESERVE AND THE TAYLOR RULE 1999-2009 Nilo F. Alvarado (Economics, undergraduate)

TEACHING TOLERANCE THROUGH LITERATURE Bridget Corso (Education/English, undergraduate)

BLACK REPUBLICANS SINCE THE CIVIL RIGHTS ERA Peter Zweig (History, undergraduate)

THE DEVELOPMENT OF CASTE UNDER THE BRITISH RAJ William Borchert (History/Asian Studies, undergraduate)

THE NEW WOMAN IN CONTENTION WITH TRADITIONAL MEN Tiffany French (History, undergraduate)

HISTORICAL RESEARCH PAPER Molly Squires, None (History, undergraduate)

AARON DOUGLAS: ILLUSTRATING THE NEW NEGRO Christina Alch (History, Honors, undergraduate)

WHEN INTEREST AIDS VS. HINDERS MASTERY-ORIENTED ST Brenna Fearey (Psychology, undergraduate)

THEATRICAL HAIR & MAKEUP DESIGN FOR METAMORPHOSES Rachael Brandt (Theatre Arts, undergraduate)

THE IRISH AND BLACKFACE MINSTRELSY Annette Storckman (Theater Arts/ Creative Writing, undergraduate)

Poster Session 2

4:50-5:25p

DENTAL HEALTH IN 19TH CENTURY NEW YORK STATE Victoria Nichols (Anthropology,)
THE EFFECTS OF DEET ON FLY DEVELOPMENT Hana Akimoto (Anthropology, Biology,)
M.O.R.E- MEANINGS OF RACE AND ETHNICITY Heather Slivko-Bathurst, Kathleen Fox
(Anthropology/Black Studies, undergraduate)
LIFESTYLE TRANSITIONS OF B. BACTERIOVORUS Sombridho Bhaduri, Michael Marone
(Biology, undergraduate)
ELUCIDATING THE CENTRAL DOGMA IN AN UNDERGRAD LAB Kara DeSantis (Biology,
graduate)
CYTOTOXICITY OF RU COMPLEXES AGAINST A549 CELLS Leesha Alex (Biology,
undergraduate)
PLANT EXTRACT TOXICITY AGAINST ESCHERICHIA COLI Mary Ann Joseph (Biology,
undergraduate)
CELL SURFACE PROPERTIES OF PSEUDOMONAS PUTIDA Danielle Kloster (Chemistry,
undergraduate)
BETWEENLANGUAGE INTERACTION IN BILINGUAL PHONOLOGY Rebecca Shuriff, Leah
Fabiano-Smith, Jessica A. Barlow, and Brian A. Goldstein (Communication Disorders,)
AN INTRODUCTION TO COMICS THEORY: 1960-1980 Sean Murphy (English, undergraduate)
SEXISM IN THE LIVES AND WORKS OF THE BEAT POETS Jennifer Bernstein (English,
undergraduate)
BIOFACIES ANALYSIS ALONG A MIDDLE DEVONIAN PALEOGRADIENT Martin, Jaclyn
Geology Department
A MIDDLE DEVONIAN TERRESTRIAL ARTHROPOD TRACKWAY- CATSKILL DELTA
Hanson, Kathleen M, Geology Department,
EXPERIMENTAL TAPHONOMY OF COILED CEPHALOPODS Gahn, Christopher T, Geology
NUTRITION SECURITY VIA URBAN AGRICULTURE IN CUBA Caitlyn Van Damm, -(Latin
American Studies, undergraduate)
NON-ADJACENT BIGRAMS IN LETTER IDENTIFICATION Nolan Conaway, Denise Donatien-
Coder, Jesse Siegel (Psychology, undergraduate)
THE EFFECT OF SHADOWING ON LETTER RECOGNITION Eric Herskowitz (Psychology
Department, undergraduate)
DOMESTIC VIOLENCE IN INDIA: COMMUNITY AND AUTONOMY Darian Pucciarelli, Sunita
Bose (Sociology, undergraduate)
WOMEN IN LATIN AMERICAN CINEMA Alma Santana (Spanish Major/Latin American Studies
Major, undergraduate)
TRANSGENDER CHILDHOOD IN PRINT JOURNALISM Sarah Ruth Lindner (Women Studies,
undergraduate)

Poster session 3

5:25-6p

EFFECTS OF ADIPOKINETIC HORMONE ON CROP FUNCTIONS Aruna Puthota, Leila Crisson (Biology,)

BIS-PHENOL A INHIBITS AND DISRUPTS REGENERATION IN Elena Oldendorf, Tyler Carson (Developmental Biology, graduate)

EFFECTS OF XENO ESTROGENS ON REGENERATION Tyler Carson, Elena Oldendorf (Biology, undergraduate)

BIOCHEMICAL PROPERTIES IN DAD3 PROTEIN Abiola Gittens (Biology, undergraduate)

REPELLENCY OF PINENES AGAINST THE HOUSE FLY, MUSCA Jacob Kuruvilla, Eric Werner, (Biology and Chemistry,)

BIOCHEMICAL AND BIOPHYSICAL PROPERTIES OF DAD-1 Aruba Iqbal (Biology, undergraduate)

THE MOST EFFECTIVE METHODS FOR TEACHING SCIENCE Millicent Guido (Secondary Education Biology, undergraduate)

TUMOR CELL CYTOTOXICITY OF RU(II)-ARENE COMPLEXES Olivia Gliserman, Juan DeJesus, Sanjana Reddy, Danielle Del Re (Biology and Chemistry, undergraduate)

CONFORMATIONAL ISOMERISM IN RUTHENIUM COMPLEX Juan De Jesus (Chemistry, undergraduate)

ISOLATION OF COMPOUNDS FROM PSORALEA CORYILFOLIA David Samuel, Ingrid Walfish, David Samuel (Chemistry, undergraduate)

[RU(BPY)₂(-KETOIMINATE)][PF₆]: A NEW COMPLEX Jordan Sumliner (Chemistry, undergraduate)

STABILITY/SOLUBILITY TESTS ON S₁₃/R₁₃ Varun Talanki (Chemistry, undergraduate)

SYNTHESIS OF MONOCYCLIC AND BICYCLIC beta-LACTAMS Maria Rodolis, Destiny Rivera (Chemistry, undergraduate)

FOURTH-GENERATION WARFARE AND TODAY'S TERRORIST Michelle Feldstein (International Relations, undergraduate)

SAYING NYET TO THE RUSSIAN LANGUAGE IN UKRAINE Katherine Cossolotto (International Relations/ Art History, undergraduate)

HOW THE STRONG LOSE WARS Anna Dluzniewska (Political Science, undergraduate)

DREAD: THE RELUCTANCE TO FACE CHALLENGES Ginette Maitre, Jayson Brito (Psychology, undergraduate)

THE HEDONIC VALUE OF PHILANTHROPY Storey Day (Psychology, undergraduate)

CONFLICT RESOLUTION IN ADOLESCENT RELATIONSHIPS Alicia Trapini, N/A (Psychology, undergraduate)

DENTAL HEALTH IN 19TH CENTURY NEW YORK STATE

Victoria Nichols (Anthropology)

Faculty Mentor: Kenneth C. Nystrom (Anthropology)

In 2008, while renovating the Broadway School in Newburgh, New York, construction workers re-discovered an African-American cemetery. Historical documents and diagnostic artifacts recovered during excavation indicate that Newburgh's African-American community most likely used the cemetery from 1830 - 1870, which coincides with state-wide manumission in 1827. The goal of the current project is to consider the impact of manumission on dental health by examining the frequency of carious teeth, antemortem tooth loss, and periapical abscesses. These frequencies are compared to a selection of both enslaved African-Americans and European-American samples from New York state and southern Canada (New York City African Burial Ground (1600's- 1740), the Albany Almshouse (1825 - 1925), the Monroe County Poorhouse (1826-1863), and the St. Thomas Anglican Church (1821-1874)). Overall, dental health in the Newburgh collection is worse than the New York City and almshouse samples, yet better than a contemporaneous middle class Euro-American collection.

THE EFFECTS OF DEET ON FLY DEVELOPMENT

Hana Akimoto (Anthropology, Biology)

Faculty Mentors: Kenneth Nystrom, Aaron Haselton (Anthropology, Biology)

Forensic entomology, or the study of fly development and succession, is essential for calculating the post mortem interval (PMI) of cadavers between 3 to 30 days old in forensic investigations. However, it has been shown that the presence of exogenous chemicals (i.e. insect repellents and drugs) can impact the reconstruction of the PMI. While insect repellents clearly will impact the timing of oviposition, larval growth and development could also be affected, potentially leading to incorrect PMI estimates. N,N-Diethyl-metoluamide, more commonly known by its abbreviations DEET, is the active ingredient of insect repellents. It has been previously demonstrated that DEET can impact animal physiology, affecting the central nervous system enzyme acetylcholinesterase in insects and mammals. In this research, we examine the impact of DEET on the growth and development of *Musca domestica*, (house flies) and *Calliphoridae* (blowflies) raised on an artificial diet containing different concentrations of the chemical.

M.O.R.E- MEANINGS OF RACE AND ETHNICITY

Heather Slivko-Bathurst, Kathleen Fox (Anthropology/Black Studies, undergraduate)
Faculty Mentor: Professor Benjamin Junge (Anthropology)

This research project (conducted by two undergraduate students) employed a quantitative survey methodology to examine understandings of the concepts of "race" and "ethnicity," and attitudes about racial inequality in the contemporary United States, as well as on our home campus (SUNY-New Paltz). Specifically, we address: (a) How do SUNY-New Paltz faculty, undergraduates and graduate students define and conceptualize race and ethnicity? (b) How do they view racism as a part of social inequality today? (c) How have they interpreted the election of President Barack Obama and its implications for racial issues? (d) What are their attitudes regarding controversial, timely issues such as affirmative action, segregation, inter-racial marriage, and racial language? Our anonymous online survey was conducted in the Fall 2009 semester consisted of both closed- and open-ended questions. The final sample includes 712 undergraduates, 122 graduates, and 97 faculty members. Analysis characterizes SUNY-New Paltz faculty and students with respect to demographics, understandings of race and ethnicity, and other variables reflecting the research questions above. Moreover, we look at sub-group differences by status (faculty vs. student), gender, and racial identity. In the complete analysis of our data, all variables will be considered, with detailed sub-group cross-tabulations, and the implications for future research on race in college campuses will be discussed.

FASHION AS PROPAGANDA IN THE FRENCH REVOLUTION

Caryn Schuster (Art History, undergraduate)
Faculty Mentor: Andrea Varga (Theater)

Fashion serves both as an important proponent of a country's economy as well as reflects the changing modes and styles of a changing time. Clothing has always been used to affirm wealth and status, but it can also be used toward achieving political ends, as can be seen in the events leading up to and following the French Revolution. As the political climate of France in the late eighteenth century became more and more dangerous, there was a notable shift of the intention of fashion. Fashion was transformed from a symbol of social standing to an icon of the Revolution. Clothing not only developed into a means of delineating which side of the Revolution one supported, it became a veritable form of propaganda used by both the French government and the rebels of the Revolution. Through researching resources such as articles, books, and fashion prints spanning from the 1770s to the early 1800s, I have attempted to form an objective opinion about fashion in the late eighteenth century. My investigation begins with a study of the various purposes to which fashion can be put, starting with Marie Antoinette and her superfluous spending of France's money on clothing. I then move through the political shifts in history through the Revolution and Reign of Terror, in which fashion purposely reflects the working class Revolutionaries. The study concludes with Napoleon's rise to power and his attempts to revitalize France's economy through the reinstating of luxury textiles.

PRIVATE AND PUBLIC IN ANDY WARHOL'S PHOTOGRAPHY

Lauren Levine (Art History, undergraduate)

Faculty Mentor: Reva Wolf (Art History)

When considering Andy Warhol, soup cans and socialites are likely the first things to come to mind. However, the significant role of photography in Warhol's art remains under-appreciated and is the subject of my research. In a spring 2010 exhibition at the SUNY New Paltz Dorsky Museum, with a student-authored catalogue, 151 never-before-studied photographs by Warhol are presented as tools used in creating his paintings and as a chronicle of his life. The Dorsky Museum received the photographs as part of a nationwide donation from the Warhol Foundation. The photograph in the exhibition that I have investigated is a Polaroid of Brooke Hayward, created by Warhol as a sketch for a commissioned painted portrait. The Polaroid presents Hayward in a more glamorous rendering than the later painted portrait. Why would Warhol avoid his usual practice of creating an idealized celebrity portrait to suggest a less than romanticized vision of a Hollywood elite? I suggest that this was Warhol's subtle way of incorporating Hayward's traumatic past into her portrait, as if embodying both the idealized media-based vision of the celebrity and the more human image of a difficult life. The Warhol photographs in the Dorsky Museum's collection reflect Warhol's own desire to be a part of the elite celebrity circle, yet also reflect his introverted nature as he lived his life somewhat vicariously, through his camera.

PURIFICATION OF NUCLEAR RECEPTOR PROTEIN CONSTRUCT

Aaron Reed (Biology, undergraduate)

Faculty Mentor: Jeffrey. Reinking (Biology)

Type I nuclear receptors (NR) are a class of intracellular proteins found in animal cells and function as transcription factors. These proteins possess distinct ligand binding domains (LBDs) that are mostly specific to cholesterol- or retinoid-derived hormones. When bound together, an induced conformational change in the NR takes place and allows for the unit to adhere to complementary regions of DNA within the nucleus to regulate DNA transcription. Hormonal ligands play a vital role in regulation of cell homeostasis and development, determining the unknown ligands for a nuclear receptor could have significant importance for research in pharmaceutical development. Previous work in our lab led to the creation of recombinant expression vectors (derived from the organism *C. intestinalis*) designed to allow the overexpression of tagged NR LBDs within *E. coli* when induced with the sugar lactose. Data presented here verifies that all of the vectors allow inducible expression of appropriately sized protein constructs that can be purified to near homogeneity with a single Ni affinity column. Conditions to optimize stability of each individual protein have also been scouted. Future experiments involving purified and stable NR LBDs will aim to discover their corresponding natural cognate ligands.

EFFECTS OF ADIPOKINETIC HORMONE ON CROP FUNCTIONS

Aruna Puthota, Leila Crisson (Biology)

Faculty Mentor: Aaron Haselton (Biology)

Adipokinetic hormones (AKHs) are neuropeptides known to mediate nutrient mobilization and metabolism in many insects. In flies, ingested nutrients initially pass through the crop, a specialized muscular storage region of the alimentary canal. AKH immunoreactive nerves have been reported running along the passageway leading to the crop in the fruit fly, *Drosophila melanogaster*, suggesting a myotropic function for this peptide hormone. We will investigate the effects of exogenous AKH on *D. melanogaster* crop activity in situ. These data will add to our current understanding of the neuropeptidic control of the insect foregut and alimentary physiology.

BIS-PHENOL A INHIBITS AND DISRUPTS REGENERATION IN

Elena Oldendorf, Tyler Carson (Biology, graduate)

Faculty Mentor: Spencer Mass (Biology)

Bis-phenol A (BPA) is an environmental endocrine disruptor which has a long history of use as a plasticizer in food packaging and industrial plastic production. While not a steroid itself, BPA has been shown to act as a low affinity E2 receptor agonist in vertebrates, to have xeno estrogen effects in mollusks, and has been associated with a variety of imposex, intersex and other developmental abnormalities across phyla. Here we demonstrate that BPA has profound effects in regenerating planarians across a range of concentrations from delaying wound healing and retarding blastema development to inducing peculiar morphological abnormalities. Transected animals from a fissiparous strain of *D. tigrina* were treated with BPA in both ethanol and DMSO at concentrations ranging from micromolar to millimolar. At high concentrations, the animals did not fully heal and were unable to regenerate, frequently resulting in death. At lower concentrations, the animals were capable of delayed wound healing, delayed blastema formation and delayed regeneration but were not able to regenerate normally. Either the kinetics of regeneration and/or the morphology of the resulting animal was strikingly and characteristically abnormal. Repeated studies show that the morphological abnormalities are dose dependent. Significantly, these morphological abnormalities as well as the results of delayed and arrested regeneration are maintained after removal of the BPA from the experimental conditions.

EFFECTS OF XENO ESTROGENS ON REGENERATION

Tyler Carson, Elena Oldendorf

(Biology, undergraduate) Faculty Mentor: Spencer Mass (Biology)

A growing number of industrial chemicals are being categorized as xeno estrogenic environmental endocrine disruptors, including bisphenol A (BPA) and 4-octylphenol (4-OP). While not themselves steroids, these molecules have been shown to act as low affinity E2 receptor agonists in vertebrates, to have estrogenic effects in mollusks, and have been associated with a variety of developmental abnormalities. Work in our lab has recently demonstrated that BPA and 4-OP delay and disrupt regeneration in the planarian *D. tigrina* in a concentration dependent manner. The mechanism remains unknown and no homologous E2-like pathway has yet been identified in the planaria. Since amphibia do have an E2 pathway and are the most plastic of regenerating vertebrates, we are currently examining the effects of BPA and 4-OP on wound healing and blastema formation in *Ambystoma mexicanum* (the Axolotl) and the planarian *Schmidtea mediterranea*, both model organisms. We are comparing regeneration after transection in the planaria and regeneration following tail amputation in larval Axolotls with exposure to various concentrations of BPA and 4-OP, using qualitative staging as well as quantitative measurement of blastemas. Aside from potentially important environmental implications, should we see similar results in both organisms, interesting questions arise concerning the role of estrogenic and possibly anti-estrogenic molecules in regeneration as well as the pathways these molecules may use.

BIOCHEMICAL PROPERTIES IN DAD3 PROTEIN

Abiola Gittens (Biology, undergraduate)

Faculty Mentor: Jennifer Waldo (Genetics, Biology)

Segregation of chromosomes during mitosis requires microtubule polymers from the mitotic spindle. The kinetochore is the protein structure on a chromosome, within the centromere, where the mitotic spindle attaches during cell division to pull chromosomes apart. Attachment of mitotic spindles to the kinetochore region to pull apart the chromosomes is essential for cell survival and genome stability. The kinetochore region consists of many intricate protein assemblies, each with a group of different functioning protein complexes. One known kinetochore complex is the Dam1/DASH complex. Cell biologists are studying and manipulating the proteins within this complex to examine the function of the proteins and observe how they affect cell division. The protein I am currently investigating is the Dad3 protein within the Dam1/DASH complex. We are using a protein concentration assay to determine how various conditions affect the solubility of the protein. Then the Dad3 protein is manipulated by heat treatment and or by varying the pH conditions. A control was made in each case to observe the protein function without treatment. Thus far, I have observed the Dad3 protein becomes insoluble at high temperatures. I have also observed the protein is insoluble in acidic pH conditions. The investigation of the Dad3 protein is still underway and additional results will be presented.

NEW MACROCYCLES AS CHIRAL SHIFT REAGENTS

Thomas Quinn (Biology, undergraduate)

Faculty Mentor: Frantz Folmer-Andersen (Chemistry)

Many situations require scientists to differentiate between enantiomers, non-superimposable mirror image molecules. This task oftentimes proves difficult to accomplish. Our research attempts to develop a technique which allows for distinguishing between enantiomers using synthetic macrocycle derived from trans-1,2-diaminocyclohexane and nuclear magnetic resonance (NMR) spectroscopy. NMR spectroscopy does not distinguish between enantiomers by default. However, through performing successive advanced titrations, we have demonstrated the ability of this class of macrocycles to effectively differentiate between enantiomers of mandelic acid and its derivatives in the spectra produced by NMR spectroscopy. The results accumulated suggest these organic could serve a function in enantioselectivity.

REPELLENCY OF PINENES AGAINST THE HOUSE FLY, MUSCA

Jacob Kuruvilla, Eric Werner (Biology and Chemistry)

Faculty Mentors: Preeti Dhar and Aaron Haselton (Chemistry and Biology)

Musca domestica is a common non-biting nuisance fly that is capable of transmitting pathogens to humans and non-human animals. Many strategies designed to control this insect vector employ repellent compounds that have reported mammalian toxicity. Insect repellents derived from natural products may be more desirable than currently available synthetic repellents, if they have lower toxicity and equivalent repellent properties. We have developed a behavioral bioassay using a Y-tube olfactometer that has been placed in a light exclusion chamber, to determine if S-pinene, a plant secondary metabolite, repelled the house fly. Individual five-day-old adult house flies were introduced into the Y-tube olfactometer and exposed to both pinene solution and vehicle control odors. The introduced fly makes a locomotor decision at the junction of the Y-tube where the odor currents separate. Using the initial pathway chosen by the fly, the data is recorded. Our study revealed that solutions of S-pinene repelled adult male and female *M. domestica* at all concentrations tested (from 29% to 0.9% V/V).

ELUCIDATING THE CENTRAL DOGMA IN AN UNDERGRAD LAB

Kara DeSantis (Biology, graduate)

Faculty Mentor: Jeffrey Reinking (Biology)

The Protein Structure Initiative is project aimed at cataloging the three dimensional structure of proteins and making the structures widely available to researchers. Abandoned DNA constructs left over from the activities of the Protein Structure Initiative have been harvested as the basis for the construction of a laboratory exercise for students to learn how to complete state-of-the-art purification of colorful recombinant proteins of unknown function and provide a gateway for follow-up inquiry-based investigations

MARINE BACTERIA IN SOUTH PACIFIC CORAL REEFS

Denni Catalano

Mentor: Jason Valens

Marine environments are being destroyed due to changing climatic conditions such as global warming, bleaching, over fishing, and human collection of marine specimens. By studying microbial communities we can better understand the significant roles these tiny bacteria have on their overall ecosystems. There are many chemical processes involved. Marine bacteria play an important role in controlling nutrient levels in coral reef environments. Excess nutrients, such as phosphates and nitrates can endanger coral reefs. Because the identities of all the players of bacteria are not known, the purpose of this research is to identify different species of bacteria that are involved in nutrient cycling. In order to identify the different species PCR was used with two different sets of universal 16s primers. One set of primers, produced a 1.4kb fragment and the other primers produced a 0.3kb fragment. These fragments were then inserted into a plasmid using two strategies: blunt-end cloning which used a 3kb vector and TOPO-TA cloning which used a 4kb vector. The plasmids were then digested using restriction enzymes to test for the insert. Using these methods yielded a large amount of positive clones that have been sent out and sequenced. Sequencing of these clones has revealed several species of recently identified bacteria as well as a novel 16s sequence that has been submitted and verified by NCBI as originating from an unknown species of bacteria. This sequence has been published on Genbank with the accession number as *GU727549*. Further experiments include the categorization of novel bacterium *Liv16S_LC_LI 16S* using classical microbiological technique as well as further investigation of microbial structure.

BIOCHEMICAL AND BIOPHYSICAL PROPERTIES OF DAD-1

Aruba Iqbal (Biology, undergraduate)

Faculty Mentor: Jennifer Waldo (Biology)

Biochemical and biophysical properties of the *Candida albicans* protein, DAD-1 *Candida albicans*, a yeast found in the gut flora, has been found to have the DASH complex that is involved mitosis. Composed of 10 proteins, the DASH complex is a microtubule-binding complex that aids in proper chromosome separation at the kinetochore. To understand the specific role of the DASH complex in *C. albicans*, and more precisely, how the 10 proteins interact together, the DAD-1 protein was studied in this experiment to gather its biochemical and biophysical properties. At the present time, the protein has been exposed to different temperatures and pH conditions to examine its behavior in these environments. In particular, we are assaying the degree to which DAD-1 remains in solution under these conditions. Interestingly, increasing the temperature to 95C did not have a significant effect on the solubility of the protein. However, when combined with various buffers at low pHs, the solubility of the DAD-1 protein decreased slightly. Through further experimentation on DAD-1, we hope to gain knowledge on the unique properties of the protein and how they contribute to the DASH complex.

AN EVOLUTION OF THE PHARMACY

Kelcey Noble (Biology, undergraduate)

Faculty Mentor: Thomas Nolen (Biology)

The career description of a pharmacist has evolved by means of numerous scientific areas since its origination in the 3rd century A.D. Through analysis of historical texts pharmacists have been pulled through medicinal time as an outlet for chemists to display their findings as well as to take burdens of drug dispensing off the hands of physicians. It is important to comprehend the roles that pharmacists have performed under in order to create the next generation of their work in impacting health care. In the United States the health of its citizens, technology, and economy have all molded the capacity in which pharmacists interact with patients. Now, with the initiation of health care reform in the United States of America the function of medications and pharmacists is sure to be renovated. An examination of the potentials roles of pharmacists working in teams with physicians to select treatment and management of drug therapy will allow people to adjust to the future of health care.

CYTOTOXICITY OF RU COMPLEXES AGAINST A549 CELLS

Leesha Alex (Biology, undergraduate)

Faculty Mentor: Maureen Morrow (Biology)

Studies have shown that non-platinum, transition metal-based agents such as ruthenium complexes may effectively serve as alternatives to cancer chemotherapy. Drugs used today, such as cisplatin, are toxic to the body. Therefore, we analyzed a variety of ruthenium compounds for cell cytotoxicity. Some compounds had a high level of cytotoxicity and we want to understand the mechanism of the toxicity. Apoptosis is one form of cell death. To determine if the ruthenium compounds cause apoptosis, we sought to establish a gel electrophoresis assay for detecting apoptosis. Studies have indicated that the use of hydrogen peroxide in small quantities may induce apoptosis. Therefore, we used hydrogen peroxide treated A549 cells to establish the gel electrophoresis assay. In this experiment, DNA from treated and untreated cells was isolated and gel electrophoresis was then conducted on the samples to analyze any laddering patterns. Experiments conducted thus far have not shown any laddering.

PLANT EXTRACT TOXICITY AGAINST ESCHERICHIA COLI

Mary Ann Joseph (Biology, undergraduate)

Faculty Mentors: Maureen Morrow, Preeti Dhar (Biology, Chemistry)

The use of and search for antimicrobial compounds derived from natural substances including plants have accelerated in recent years. Since Western medicine is currently focusing on the use of phytochemicals of plants to prevent or cure infectious conditions, this study established minimum inhibitory concentration (MIC) values, a maximum dilution of a product that will still inhibit the growth of a test microorganism, to determine bacterial susceptibility to plant extracts. We chose to test for the antimicrobial effectiveness of two selected plant extracts. Extracts containing furanocoumarin compounds were prepared from *Heracleum maximum* and *Psoralea corylifolia*. These extracts have been shown to be somewhat toxic to animal cells and we sought to determine if they also have antimicrobial activity. Preliminary studies have determined MIC values for known antimicrobial agents against *Escherichia coli* HB101. This study determined the MIC values of the plant extracts against *E. coli* HB101. We will present our results and make comparisons of the toxicity against bacteria and eukaryotic cells.

FLUORESCENCE ASSAY FOR RECEPTOR-LIGAND BINDING

Raneen Rahhal, Xia Weng (Biology, undergraduate)

Faculty Mentor: Pamela St. John (Chemistry)

Estrogen receptors (ER) are receptors stimulated by the hormone estradiol (E2). They regulate genes which control growth and differentiation and they play a role in the female reproductive system. For the past decade, there has been concern of estrogen-like compounds in the environment and in manufactured goods which bind to ER. Estrogen receptors are responsible for certain reproductive, developmental, and behavioral deformities or malfunctions, including endocrinological disorders. One of the most prevalent of these disorders is breast cancer, which is the second most leading cause of deaths in women in the US. A quantitative approach is needed to better understand the binding interactions between ER and estrogen-like compounds. Several studies have attempted to create methods to study these interactions. While some failed, others were too demanding. We used an inexpensive and less time-consuming method to study protein-ligand interactions which was based on the intrinsic fluorescence of the estrogen-like ligand, coumestrol (CM). In our experiment, the fluorescence intensity of CM was measured with increasing amounts of ER. When coumestrol bound to ER, the fluorescence intensity of CM increased. We found that coumestrol binds to ER specifically with a binding constant of 26 nM. Results from a competition assay between CM and E2 for the active site on ER showed that E2 did not displace CM implying that CM may be binding to a different region on ER.

ISOLATION OF COMPOUNDS FROM PSORALEA CORYILFOLIA

David Samuel, Ingrid Walfish, (Biology, Chemistry, undergraduate)

Faculty Mentor: Preeti Dhar (Chemistry)

Psoralea corylifolia is a plant native to India, and is known to be rich in a class of compounds called furanocoumarins. The seeds of this plant are used in folklore medicine to treat Vitiligo. Previous work in the lab on this plant included brine shrimp bioassays, melanogenesis studies on B-16 mouse melanoma cells, and tyrosinase stimulation. Since Furanocoumarins are known to induce pigmentation (though the mechanism by which they do so is not known), and we had worked with extracts as a whole, we wanted to identify individual furanocoumarins present. Our research investigated the isolation and purification of these compounds. Soxhlet extraction of the pulverized seeds was done using ethanol as a solvent. The plant extract was purified using a variety of silica-based purification techniques such as column chromatography and preparatory TLC. Furanocoumarins were identified by a change in fluorescence when sprayed with 10% NaOH/methanol. Based on results from NMR and UV fluorescence we were able to purify and identify a furanocoumarin, Psoralen. Further research is being done to isolate additional furanocoumarins.

TUMOR CELL CYTOTOXICITY OF RU(II)-ARENE COMPLEXES

Olivia Gliserman, Juan DeJesus, Sanjana Reddy, Danielle Del Re (Biology and Chemistry, undergraduate)

Faculty Mentors: Maureen Morrow and Daniel Freedman (Chemistry and Biology)

Ruthenium II arene complexes have been explored for their potential as anticancer drugs. It is thought that the cytotoxicity of these compounds is due to covalent binding with DNA. In our work, various [(p-cymene) Ru(b-CH₃C(O)CHC(N(R)CH₃)Cl)] (R=substituted phenyl) complexes were synthesized. Complexes of this type are relatively easy to synthesize and the steric and electronic properties can be easily adjusted by varying the R group on the beta-ketoiminate ligand. The aim of this study is to investigate the effect of various R groups on cytotoxicity. Ten compounds were synthesized and analyzed for cytotoxicity against A-549, a small cell lung carcinoma line. The mean lethal dose (LC₅₀) of the compounds differed significantly, ranging from 10-150 mM. Ligands where R is para-substituted have low toxicities while the highest toxicity was observed with where R=o-CO₂C₆H₅-. Interestingly, several types of analysis revealed no evidence of DNA binding for this complex. Trends in cytotoxicity among these compounds will be discussed along with comparisons to studies of related compounds already reported.

ANALYSIS OF THE WORKFLOW OF PHYSICIANS' ROUNDS

Molly Duguid, Chih-Yang Tsai, Paul Pancoast, Naila Shereen, Christine Seward, Renju Vattasseril (Business, undergraduate)

Faculty Mentors: Chih-Yang Tsai (School of Business)

Abstract: Hospital care consumes close to one third of the U.S.'s annual healthcare spending. This study intends to delineate the process of physicians' hospital rounds in three regional hospitals by shadowing doctors and recording the time spent in each task. The purpose is to understand the dynamics of this process and establish a benchmark to be used for measuring improvement when an integrated medical information system is phased in. Initial findings suggest that there is great variability existed in task times and the sequence of the tasks. We expect both the average task times and their standard deviations in collecting, reviewing patient's charts and writing summaries and orders be reduced when the information system is implemented, allowing physicians to spend more time with patients.

CONFORMATIONAL ISOMERISM IN RUTHENIUM COMPLEX

Juan De Jesus, (Chemistry, undergraduate)

Faculty Mentor: Daniel. Freedman (Chemistry)

As part of our investigations into the chemistry of ruthenium b-ketoiminate complexes, we have prepared a ketoimine ligand with a coumarin substituent attached in the 7 position ($\text{CH}_3\text{C}(\text{O})\text{CHC}(\text{NH}(7\text{-coumarin}))\text{CH}_3 = \text{HL}$) and the corresponding $[(p\text{-cymene})\text{Ru}(\text{L})\text{Cl}]$ complex. The ligand was prepared by the reaction of 2,4-pentanedione and 7-aminocoumarin which was prepared by a literature procedure. The new ligand and ruthenium complex were characterized by $^1\text{H-NMR}$ spectroscopy and by X-ray crystallography in the case of the complex. Room temperature proton NMR spectra of the ruthenium complex showed two isomers. We believe these to be conformational isomers produced by rotation of the pendant coumarin. X-Ray crystallography revealed one isomer in which the coumarin is perpendicular to the plane of the ketoimine ligand with the carbonyl pointed away from the p-cymene. Variable temperature proton NMR shows that the two isomers begin to interchange above room temperature.

ACYLHYDRAZONE EQUILIBRIUM CONSTANT IN WATER BY NMR

Tyler Moore (Chemistry, undergraduate)

Faculty Mentor: Frantz Andersen (Chemistry)

Acylhydrazones form reversibly in water by the coupling of carbonyl and acylhydrazide functional groups. Mixtures of dilute carbonyl and hydrazide solutions were prepared with varying pH, and the acylhydrazone product ratios were measured by ¹H NMR spectroscopy. An equilibrium model accounting for both reversible acylhydrazone coupling and protonation of the hydrazide fragment has been derived, and the data were fit to this model, yielding equilibrium and acidity constants (pK_a values). Knowledge of these equilibrium constants may be used for the determination of the strengths of non-covalent interactions involved in the folding of biomimetic oligomers, and may aid in the design of combinatorial drug discovery schemes.

[RU(BPY)2(-KETOIMINATE)][PF6]: A NEW COMPLEX

Jordan Sumliner (Chemistry, undergraduate)

Faculty Mentor: Daniel Freedman (Chemistry)

[Ru(II)(bpy)₃]²⁺ (bpy=2,2'-bipyridine) and its [Ru(II)(bpy)₂L] derivatives are very well studied coordination complexes because of their long-lived MLCT excited states and their potential applications in sensor and energy storage schemes. We have been studying ruthenium complexes of -ketoiminate ligands and were surprised to discover that no [Ru(bpy)₂(-ketoiminate)]⁺ complexes have been reported. We have prepared and characterized a new complex, [Ru(II)(bpy)₂(o-OHPhNO)][PF₆], (o-OHPhNO = CH₃C(O)CHC(N(o-OHPh))CH₃) via the reaction of [Ru(bpy)₂Cl₂] and o-OHPhNO. This dark maroon complex was characterized by 1D and 2D ¹H-NMR spectroscopy, cyclic voltammetry, and IR spectroelectrochemistry.

SYNTHESIS OF DIAMINOCYCLOHEXANE BASED MACROCYCLES

Philip Atwood (Chemistry, undergraduate)

Faculty Mentor: Frantz Folmer-Andersen (Chemistry)

By using diaminocyclohexane as the main starting material, we have created various macrocyclic molecules through a multi-step organic synthesis. The macrocycles have been characterized by ¹H and ¹³C NMR spectroscopy, and in some cases X-ray crystallography and mass spectrometry. These macrocycles are being used to differentiate between enantiomers, mimicking protein-like molecular recognition processes. The macrocycles have also been shown to bind Zn(II) ions to form well defined complexes, and therefore also have potential as catalysts and transport agents.

CELL SURFACE PROPERTIES OF PSEUDOMONAS PUTIDA

Danielle Kloster (Chemistry, undergraduate)

Faculty Mentor: Megan Ferguson (Chemistry)

Pseudomonas putida is a gram-negative bacterium used in bioremediation due to its diverse metabolism. It produces biosurfactants that may contribute to its ability to use polycyclic aromatic hydrocarbons, such as anthracene, as a carbon source. The goal of this experiment was to determine the effects of media, growing surface, growing time, and the presence of anthracene on the growth of *P. putida* biofilms in order to learn more about their membrane-bound biosurfactants. *P. putida* biofilms were grown in minimal media & glucose or tryptic soy broth, with or without anthracene, on glass or plastic, and for 24 or 48 hours in an incubator. Samples were analyzed using atomic force microscopy. The results show that bacteria grew more clumped together and took up less surface area per cell on the plastic hydrophobic surface, indicating that cell-surface contact is limited so that hydrophobic-hydrophilic interactions can be minimized. However, on samples with anthracene crystals, the bacteria grew around the crystals on both glass and plastic surfaces despite other adequate carbon sources. This suggests that the presence of anthracene may trigger a biosurfactant-producing response that alters their hydrophobicity and attraction to crystals.

STABILITY/SOLUBILITY TESTS ON S13/R13

Varun Talanki (Chemistry, undergraduate)

Faculty Mentor: Preeti Dhar (Chemistry)

alpha-Pinene is a compound found in the oils of coniferous trees and is known to be antimicrobial in nature. Manipulating the double bond in alpha-pinene to do functional as well as structural changes, and studying the antimicrobial activity of the resulting compounds could give us insight into how structure of a compound affects its antimicrobial activity. Structure-activity studies will ultimately help us design compounds with more of the desired property (antimicrobial). Such novel antimicrobial agents would benefit agricultural and pharmaceutical industries. Previous research involved synthesis of a number of structural derivatives. Two of these are (1S,2S,7R,9S) (S13) and (1R,2R,7S,9R)-6-Oxo-5-phenyl-4-thioxo-2,10,10 trimethyl-3,5 diazatricyclo[7.1.1.0^{2,7}]-undecane (R13) (mirror images of each other). These compounds were of particular interest as they had antimicrobial effect only on the prokaryotic cells and not eukaryotic cells. Since they were insoluble in most solvents, the antimicrobial assays on these compounds were carried out using tetrahydrofuran (THF). Various solubility tests of R13/S13 including NMR were performed in THF, acetonitrile, methanol and dichloromethane (CH₂Cl₂). It was discovered that R13/S13 decomposed over time in THF which was confirmed by thin-layer chromatography (TLC). Decomposition was more apparent as temperature was increased. CH₂Cl₂ was the more ideal solvent for studying R13. Bioassays on these two compounds will be repeated.

SYNTHESIS OF MONOCYCLIC AND BICYCLIC -LACTAMS

Maria Rodolis, Destiny Rivera (Chemistry, undergraduate)

Faculty Mentor: Preeti Dhar (Chemistry)

The β -lactam moiety is a common structural element in widely used antibiotics such as cephalosporin and penicillin. It is known that β -lactam antibiotics interfere with the synthesis of bacterial cell walls. Widespread use of β -lactams has caused an alarming increase in bacterial resistance. Certain bacteria have been able to develop counter-measures to traditional drug therapies by creating the enzyme β -lactamase which serves to 'break' the β -lactam ring, effectively abolishing the antibiotic's effectiveness. This defensive adaptation creates the need for drugs with more specific antimicrobial activity. It has been shown that the biological activity of β -lactams strictly correlates to the presence of suitably functionalized β -lactam rings. Due to the presence of porins on bacterial membrane, β -lactams with small functional groups and low hydrophobicity is expected to have a greater chance of tunneling through the porins and killing the infectious bacteria. Previous work, focused on the carbon skeleton modification of α -pinene and its effects on antimicrobial activity. In this research project, we have synthesized some monocyclic and bicyclic β -lactams from the reaction of an alkene with Chlorosulfonyl Isocyanate. Upon determination of standardized conditions, these β -lactams have further been converted to their corresponding toluenesulfonates. Results of this study would be presented.

IS FYI CORRELATED WITH HIGHER RETENTION AND GPA?

Jessie Ostrow, (Communication, undergraduate)

Faculty Mentor: Robin Cohen-La Valle (Psychology, Student Development)

This quantitative study examines the impact that participation in the SUNY New Paltz First Year Initiative Program (FYI) has on three main variables analyzed in this study: grade point average (GPA), retention (first year onward), and student persistence to graduation. Through analyzing a plethora of scholarly texts, it is apparent that there is considerable research about the First Year Experience and its immediate mission to positively influence student transition to college. Although it is believed that the First Year Experience provides benefits throughout the duration of the college experience, comparisons between students who choose living/learning communities and the corresponding general population is severely lacking. These data reflect students who self-selected a specific living/learning community in their first year at SUNY New Paltz. The comparative data set has been retrieved from published Institutional Research and Planning "Facts and Figures" regarding retention and graduation rates. It is our hope that this research project will provide prospective New Paltz students and their families with outcome data that may be used when selecting their First-Year program. On a broader level, it is vitally important to determine if this program motivates students, as the quality of higher education informs success in our society.

BETWEEN LANGUAGE INTERACTION IN BILINGUAL PHONOLOGY

Rebecca Shuriff, Leah Fabiano-Smith, Jessica A. Barlow, and Brian A. Goldstein (Communication Disorders)

Faculty Mentor: Leah Fabiano (Communication Disorders)

Between-language interaction in bilingual phonology could cause Puerto-Rican Spanish-English bilingual children to exhibit less dialect features in Spanish due to the presence of English. Bilingual and monolingual children were examined on frequency and type of dialect use. Results yielded similarities and differences between groups. Clinical and theoretical implications are discussed.

MAKING AN OPERATING SYSTEM

Younghyuk Kim (Computer Science, graduate)

Faculty Mentor: Keqin Li (Computer Science)

This project is to implement a small 32-bit IBM PC compatible operating system. This operating system does not have rich features like well-known OS such as Linux, Mac OS and Windows. However, it supports memory management, multitasking, a simple GUI environment, file system support, interrupts, and CPU protection. Most of the program is written in the C language, and functions which are not supported by the C language such as halting system, a boot loader, a kernel loader are written in the assembly language NASK. The assembler of this project is NASK which is a product of the OSASK project in Japan. This assembler

is a modified NASM (Netwide Assembler) to have simple syntax for developers who are not proficient with. It also supports the whole 32-bit Intel CPU instruction set. The purpose of this project is to understand how an operating system manages and controls the hardware such as a CPU, a memory and peripheral devices. The knowledge learned from this project can help to understand how system software works with computer hardware and help to develop application software.

THE FEDERAL RESERVE AND THE TAYLOR RULE 1999-2009

Nilo F. Alvarado (Economics, undergraduate)

Faculty Mentor: Mona Ali (Economics)

In 1993 Stanford economist John Taylor developed a simple regression model that correctly predicted the U.S. Federal Reserve's benchmark interest rate, the fed funds rate, from 1970 to 1993. The "Taylor Rule" was the gold standard of monetary policy during the 1990s, a decade during which the U.S. economy grew at a strong pace while unemployment and inflation were both moderate. However, econometric analysis using time series data from 1999 to 2009 indicates that the Fed did not follow the Taylor Rule for this decade as a whole. My results suggest that policymakers may have abandoned the rule in the late nineties onwards. By letting go of the Taylor Rule and excessively lowering the benchmark interest rate, the Fed fueled the asset price bubble that eventually manifested in the Great Recession of 2007-2009. In short, by abandoning Taylor's monetary principle the Fed has potentially led the economy into a period of painfully high unemployment.

TEACHING TOLERANCE THROUGH LITERATURE

Bridget Corso (Education/English, undergraduate)

Faculty Mentors: Tim Dewar, Jan Schmidt (Secondary Education, English)

This project consists of a curriculum plan divided into four smaller units all dealing with the theme of recognizing discrimination and tolerance in our society's past and present, and focusing on how to prevent it in the future. The four units will be as follows: a unit on the Holocaust, on McCarthyism, on the Civil Rights movement and Racism, and finally on the aftermath of 9/11 and illegal immigrants. Each unit will involve multiple forms of media analysis and cooperative work that focuses mostly on the students grappling with material themselves rather than the teacher lecturing. In order to develop these units, I consulted several websites and books, as well as enlisted the help of many veteran teachers and their own experiences and suggestions. I also visited several museums dealing with the historical events that I centered the units around. It is my belief that this will develop a creative and interesting way to help students engage with literature and truly understand what it means to be tolerant of their fellow human beings.

THE MOST EFFECTIVE METHODS FOR TEACHING SCIENCE

Millicent Guido (Education- Secondary, Biology, undergraduate)

Faculty Mentors: Rosemary Millham, Aaron Haselton (Secondary Education, Biology)

This project tests the most effective methods for teaching and learning science, of the four main categories of learning; visual, auditory, reading/writing, kinesthetic learners. This project will ask students between the ages of 18 and 21 to lend about 15 or more minutes to sit through four different lessons, each one catering to a different category of learning. To determine how much the student learned from each type of teaching method, each student will take a pre-test, sit through the lesson, then take the same test again (a post-test). The results of the pre and post tests can be compared and the trends of results in the different methods can then be examined in relation to the current thought on the pedagogy of learning and teaching science. I plan to collect all of the information anonymously from the students since their identification is irrelevant to the project.

AN INTRODUCTION TO COMICS THEORY: 1960-1980

Sean Murphy (English, undergraduate)

Faculty Mentor: Pauline Uchmanowicz (English)

I intend to examine the influence of early comic rhetoric, deconstructionist literary theory (namely the work of psychologist Jacques Lacan, with some attention paid to Foucault) and paraliterary theory (the latter first codified by Samuel R. Delany in 1977's *The Jewel-Hinged Jaw*) on a wide array of contemporaneous literary works, including Thomas Pynchon's *Gravity's Rainbow* (1973), John Ashbery's *Self-Portrait in a Convex Mirror* (1976), the middle period of exploitation filmmaker Russ Meyer (with particular attention to *Vixen* [1968] and *Beyond the Valley of the Dolls* [1970]), and David Bowie's *Ziggy Stardust* (1972) and *Diamond Dogs* (1974). Portions of my AYURE paper will be juxtaposed on a poster board with selected multimedia excerpts.

SEXISM IN THE LIVES AND WORKS OF THE BEAT POETS

Jennifer Bernstein (English, undergraduate)

Faculty Mentors: Fiona Paton and Anne Roschelle (English and Sociology)

The Beat movement is generally regarded as liberal and progressive. Men such as Jack Kerouac and Alan Ginsberg are widely known as the major figures of the beat generation, however there are several writers who are not recognized for their participation. Women writers such as Dianne di Prima and Carolyn Cassady are still not particularly well known, while Ginsberg and Kerouac have become household names. The intention of this paper to to reclaim and celebrate the role women played in the Beat movement, as well as to highlight the inconsistencies within the so-called "progressive" movement itself. The notion that the Beat movement was "progressive" is incongruous with the depictions of women in Beat literature, and the experiences of female Beat writers.

A Middle Devonian Terrestrial Arthropod Trackway- Catskill Delta

Hanson, Kathleen M

Bartholomew, Alexander J., Geology Department,

The Middle-Upper Devonian Catskill Delta sediments of New York State preserve some of the earliest complex terrestrial ecosystems anywhere on the planet. Contained within the strata of the Catskill Delta are the remains of the world's oldest fossil forest, the Gilboa Forest, along with the first spiders, centipedes, and various other terrestrial arthropods. A recent discovery along the Catskill Front in Katterskill Clove has yielded a diplichnities-type trace fossil in a purely terrestrial environment. The stratigraphic position of this trace is slightly lower than the previously mentioned well-known fossil arthropods found in Schoharie County farther to the north and west. This trace is a slightly meandering track-way approximately 1.5-2cm wide and extends for over 30cm in total length, with the distance between the individual track-marks ranging from 1 to 3mm. This trace fossil is hypothesized to represent tracks made by a large terrestrial arthropod that lived on fluvial plane of the Catskill Delta. This project aims to better determine the nature of the trace maker along with elucidating the paleoecological interactions of early terrestrial arthropods.

EXPERIMENTAL TAPHONOMY OF COILED CEPHALOPODS

Gahn, Christopher T,
Bartholomew, Alex J., Geology

Cephalopods represent a diverse and biostratigraphically important group in the fossil record and yet little is known about the taphonomy of this longranging class of mollusks. The shells of fossil and extant cephalopods are basically constructed of conical or coiled hollow tubes with a number of partitions called septae, each of which is pierced by a small hole. During the life of the animal, a fleshy tube called the siphuncle extends through the chambers via the small hole in each septum and controls fluid exchange between the chambers of the shell allowing the animal to control its buoyancy within the water column. Fossil cephalopods are often found with the chambers completely filled in with fine-grained sediment and this presents somewhat of an enigma. Somehow sediment must be transferred between the chambers through the siphuncular opening in each septum, but the question remains as to how to fill all the chambers quickly enough with such a small hole to transmit the sediment. Previous workers have suggested that some shells are pierced near the end of the shell and any currents flowing over the shells as they lie on the sea floor would produce a negative pressure within the shell causing water and sediment to draft into the shell like smoke being pulled through a chimney. Few other hypotheses have yet been put forward to explain the taphonomy of these ubiquitous fossils. The purpose of this study is to better understand exactly how the cephalopods are preserved, specifically how did the chambers fill so completely with mud if they were not exposed for long periods of time on the sea floor. The project involved further examination of fossil specimens from the Devonian of Morocco, as well as various taphonomic experiments involving modern cephalopod shells as analogues for the fossils.

Biofacies Analysis along a Middle Devonian Paleogradient

Martin, Jaclyn B.,
Bartholomew, Alexander J., Geology Department,

The issue of biofacies response to sea level fluctuations has been analyzed to a large extent in vertical stratigraphic successions; the matter is complicated by the interplay of controls such as sediment input and water depth on the formation of biofacies. In order to disentangle these two effects, it is necessary to examine biofacies changes along a single time-parallel gradient, where one of these factors can be assumed to be nearly constant. One such possibility would be a gradient that runs parallel to the direction of incoming sediment supply and perpendicular to depositional shoreline strike, where water depth is known to change. Just such a case exists in the Middle Devonian of the Appalachian Basin in the coral beds of the Otisco Member of the Ludlowville Formation of central New York State. Exposures of the Staghorn Point submember along the shores and tributaries of Skaneateles Lake run roughly perpendicular to the main gradient of sediment supply in the basin and display a deepening trend to the northwest. The Staghorn Point coral biostrome is a dense thicket of mainly solitary rugose corals that sits atop a siltstone platform at most localities. This coral biostrome comes to an abrupt edge at a buried submarine escarpment, but the horizon, marked by phosphatic pebbles can be traced for nearly 10 km down ramp into distal facies. Biofacies found along the gradient preserved within the Staghorn Point submember range from shallow water associations dominated by abundant rugose and rare tabulate corals into deeper water associations dominated by athyrid and leiorhynchid brachiopods. The biofacies spectrum preserved within the single time-plane of the Staghorn Point submember is analogous to the suite of biofacies associated with a sea level oscillation cycle in areas where water depth change dominates over sediment input as a biofacies control.

BLACK REPUBLICANS SINCE THE CIVIL RIGHTS ERA

Peter Zweig (History, undergraduate)

Faculty Mentors: Palencsar, John and Bernstein, Lee (History)

This thesis explores one of the conservative movement's more intriguing syndicates, the African American. While the vast majority of black people consider themselves liberal and are members of the Democratic Party, some lean toward conservatism for a multitude of reasons. This thesis is an attempt to uncover those reasons. In doing so, I will survey the history of conservatism, focusing on the Republican Party since the 1960's. This serves as a good starting point because during this decade a progressive, left-leaning movement helped blacks achieve an element of equality in the face of "conservative normalcy." Since then prominent black Republican leaders have emerged, occupying high governmental positions and titles of the utmost significance. Their biographies and personal stories are detailed. Furthermore, I determine which trends encourage blacks to identify themselves as Republicans. I investigate demographics to find out where black Republicans reside and what they value. Finally, based on my findings, I come to a conclusion regarding the future of black Republicans and if this demographic will flourish, deteriorate, or merely survive as it is.

THE DEVELOPMENT OF CASTE UNDER THE BRITISH RAJ

William Borchert (History/Asian Studies, undergraduate)

Faculty Mentors: Akira Shimada, Kristine Harris (History/Asian Studies)

Caste is one of the most important, controversial, and mysterious aspects of Indology. Having its ancient origins in the Hindu tradition, caste developed throughout India's long history, and experienced little change until the Age of Discovery. With European exploration on the Indian subcontinent, the idea of caste became a topic of interest for the Europeans and Indians alike, and nowhere is this truer than under the British rule in India. Initially the British ruled India via the British East India Company; however, during the period from 1858 - 1947AD, the British Raj (or reign) was where British governmental rule began to dramatically change India and the caste system. With this shift in ruling India, the British sought out to better administer the country. Using anthropological data, censuses, and a myriad of historical sources, the British became quite interested in the academic study of India in order to better rule it. Caste was at the heart of their studies and proved to be one of the most important issues in governing India. As a result of the British reign, the caste system became destabilized, and the British, in a sense, liberated the Indian people from centuries of inequity under the caste system.

THE NEW WOMAN IN CONTENTION WITH TRADITIONAL MEN

Tiffany French (History, undergraduate)

Faculty Mentors: Lee Bernstein, Susan Lewis (History)

My work is for the Honors Program Senior Thesis and I researched the New Woman in Contention with the Traditional Man: A Critical Analysis of Gendered Resistance. My central question is was the resistance to the New Woman gendered? or anti progressive? My thesis surrounds the idea that since the New Women of the Progressive Era were not fighting specifically for race or class, but for gender. In essence, the New Woman was not opposed because she was overturning class structure by attaining jobs, or uplifting New Women of color, but the issue was that they were women attempting equality. I have done extensive research from the period and have analyzed many primary and secondary sources. The include but are not limited to: newspapers, books, magazines, and journal articles. From this research, I intend to analyze the lives of 5 New Women and assert that the resistance they faced as New Women was not anti-progressive or simply "conservatism" but a gendered critique of their works to preserve the patriarchal hierarchy of the time period.

HISTORICAL RESEARCH PAPER

Molly Squires, (History, undergraduate)

Faculty Mentors: Louis Roper, Akira Shimada (History)

The early Seventeenth Century marked the arrival of the East India Company, a private trading business of Great Britain, on the Southwestern coast of the Indian subcontinent. Although it was a British company, there was no political connection with India until the Battle of Plassey in 1757, in which the personal relations between EIC personnel and the local Indians sparked a conflict that demanded British governmental control in order to maintain the trade. This conflict created the first transition into what I refer to as the 'Empire of Trade,' meaning that the Empire only consisted of trading. In 1857, the Indian troops revolted, thus forcing the British Empire to tighten the leash and form the second transition into an 'Empire of Cultural Hegemony.' This shift occurred with the crushing of the revolt and the enforcement of Indian assimilation into a Western framework. Finally, World War I and the usage of Indian troops in France, signified the third transition into an 'Empire of Exploration and Expansion.' This realignment kept the Western cultural ideals in place but had a focus on learning about the Indian people. Through taking three, important events in each century of British rule I argue that the Empire evolved in order to work with the ever changing society of modernization. The constant change of ruling methods represented a vicious cycle that continually forced the surface of the British Empire to transition in accordance to changing popular ideologies.

AARON DOUGLAS: ILLUSTRATING THE NEW NEGRO

Christina Alch (History, Honors, undergraduate)

Faculty Mentors: Lee Bernstein, Susan Lewis (History)

When one thinks about the Harlem Renaissance, jazz, theatre, and literature often pop into mind. However, art, which is typically forgotten, played a large role in the Harlem Renaissance, as well. One artist in particular, Aaron Douglas, was one of the most significant illustrators during this period, and had a major impact on ideas of the "New Negro." Aaron Douglas was inspired by his African roots, cultural history, modern artistic styles, and philosophers, Alain Locke and Winold Reiss. Aaron Douglas combined all of these influences to produce unique and powerful works that reflected the ideas promoted by people who considered themselves to be "New Negroes." Through his artwork, Aaron Douglas showcased African American history to create a positive and successful image of blacks. He presented these ideas in a new form and in a completely distinctive style, which made his work stand out even more, and inspire others to do the same.

SAYING NYET TO THE RUSSIAN LANGUAGE IN UKRAINE

Katherine Cossolotto (International Relations/Art History, undergraduate)

Faculty Mentor: Kathleen Dowley (Political Science/International Relations)

After Ukraine gained its independence from the Soviet Union in 1991, it legally claimed Ukrainian the sole state language. This has proven to be a contentious area of the country's domestic policy since nearly 30% of Ukraine's population consists of ethnic Russians. My thesis argues why the Russian language should not be elevated to an official state language alongside Ukrainian by (1) examining the link between language and nationalism; (2) contextualizing my paper with an account of Russian-Ukrainian relations, focusing mostly on Soviet language policies that sought to eradicate the Ukrainian language and culture; (3) analyzing Ukraine's current language laws and policies, and determining whether or not they are discriminatory against the Russian-speaking minority; and (4) comparing Ukraine's language laws with those in two other post-Soviet states: Estonia and Kazakhstan. I conclude that Ukraine should not elevate Russian to an official state language as a way for Ukraine to reassert its own national culture, identity and language, and to also serve as a symbol of eradicating Russia's continuing imperialist aims and domination over Ukraine.

FOURTH-GENERATION WARFARE AND TODAY'S TERRORIST

Michelle Feldstein (International Relations, undergraduate)

Faculty Mentors: Lewis Brownstein, Glenn Geher (International Relations, Psychology)

Fourth-generation warfare describes the way in which terrorists are fighting today. Terrorist groups, including Al Qaeda, Jemaah al Islamiyah, and others, use fourth-generation tactics. This type of warfare is characterized by protracted conflict, the use of the media to send ideological messages, an asymmetric balance of power between terrorist groups and state actors, and the use of networks. These terrorist groups pose a direct challenge to the governments trying to counter them, as they are so decentralized. The United States government in particular must improve its counterterrorism efforts in order to defeat the terrorist networks that are a threat to its security.

NUTRITION SECURITY VIA URBAN AGRICULTURE IN CUBA

Caitlyn Van Damm (Latin American Studies, undergraduate)

Faculty Mentor: Linda Greenow (Latin American Studies, Geography)

In the wake of a food crisis subsequent to the Soviet trading bloc collapse, Cuba experienced a massive movement towards urban agriculture. This paper examines how the Urban Agriculture Movement (UAM) has not only increased food security but nutrition security. This has been accomplished through an intensive diversification of the Cuban diet that now includes significantly higher rates of fresh produce consumption. Increased micronutrient intake along with a consistent food supply and impressive community nutrition education programs are all components of the UAM. The outcome is improved nutrition security for the Cuban people, reaching far beyond the limits of food security. Nutrition security has been achieved through increased vegetable consumption and dietary diversification and an improvement in overall public health environments, as well as the formation of strong community care and education networks. In light of recent changes to Cuban agriculture, diet, and health, research has been conducted through both the medical and agricultural communities, but with little overlap. The most critical lapses occur in the cases of vitamin A and iron deficiencies, which still present themselves as public health threats and could be targeted using the UA infrastructure. This paper will attempt to shorten the gap and aims to spark further interdisciplinary research.

HOW THE STRONG LOSE WARS

Anna Dluzniewska (Political Science, undergraduate)

Faculty Mentor: Kathleen Dowley (Political Science)

My Senior Seminar research, entitled *How the Strong Lose Wars. Western Militaries and the Challenge of Asymmetric Warfare*, is focused on the challenges 4th Generation, asymmetric conflicts pose to Western militaries. Multiple studies have shown that what is increasing is not only the relative percentage of 4th Generation wars, but also the effectiveness of the weaker actors. Nevertheless, Western militaries have failed to implement any significant strategy/tactics changes in order to increase their chances of potential victory. It is quite evident that, in the context of the changing nature of war (there will be fewer Desert Storm-like operations), a major change is needed. The hypothesis I am testing is that strong actors lose because they apply a direct strategy versus an indirect, insurgency-like strategy of the opponent. I am focusing on the years 1930-1994, analyzing all asymmetric conflicts from the Chinese Civil War to the First Chechen War. I am looking for an answer what type of indirect strategy, other than barbarism and torture, would be most beneficial for the Western militaries to implement, in order to win the support of the local population in war-torn areas and therefore win the conflict.

DREAD: THE RELUCTANCE TO FACE CHALLENGES

Ginette Maitre, Jayson Brito (Psychology, undergraduate)

Faculty Mentor: Maryalice Citera (Psychology)

Even though dread is experienced on a daily basis, few research studies have examined the concept of dread. Based on past research, we define dread as a type of anticipatory fear that makes individuals reluctant to face a specific challenge in the near future. We hypothesized that dread differs from anxiety in terms of somatic responses (i.e., physiological responses such as nervousness, agitation, lethargy). Anxiety has been described as a high arousal, unpleasant feeling associated with increased tension, sweating, and pulse rates (Russell, 1980; Ree, French, MacLeod, & Locke, 2008). We propose that dread will be associated with feelings of low energy, lethargy, and sluggishness. College students will be recruited via email invitation and asked to provide personal narratives describing either a dreaded experience or one in which they experienced anxiety. After providing the narrative, participants will be asked to rate each task on uncertainty, cognitive and somatic reactions, self-efficacy and effort. The narratives will be coded in terms of cognitive and somatic differences. The ratings will be compared for dread and anxiety experiences. We anticipate that dread narratives will differ from anxiety narratives on somatic responses. More specifically we expect dread narratives will be rated lower on energy, nervousness and agitation, and rated higher on lethargy and sluggishness than anxiety narratives.

NON-ADJACENT BIGRAMS IN LETTER IDENTIFICATION

Nolan Conaway, Denise Donatien-Coder, Jesse Siegel (Psychology, undergraduate)

Faculty Mentor: Giordana Grossi (Psychology)

Recent models hypothesize that letter positions are not coded precisely during the early stages of reading. For this reason, letter strings would be processed in terms of letter combinations formed by both adjacent and non-adjacent letters (bigrams). Our previous research showed that, in forced-choice letter identification tasks, the role of non-adjacent letter bigrams depends on the orthographic status of the letter string. The purpose of this study was to test the generalizability of our previous findings by modifying the experimental procedure. In the original study, each trial was comprised of a fixation point, a five-letter string, a series of pound keys (masking), and two letters for the forced-choice decision. Participants had to decide which of the two letters was presented in the third position in the previous string. These events were consecutive, with the consequence that the third critical letter was sandwiched between the fixation point and the masking. Given that the other four letters were masked only by the pound keys and were therefore more visible, this procedure might have shifted the participants' attention from the third letter to the other letters of the string. Therefore, non-adjacent letter bigrams might have played a role on letter identification because of these shifts in participants' attention. In the present study, we inserted a blank screen between the fixation point and the letter string, so to make all letters equally visible.

THE HEDONIC VALUE OF PHILANTHROPY

Storey Day (Psychology, undergraduate)

Faculty Mentor: Maryalice Citera (Psychology)

Variations in positive affect caused by philanthropic activity were examined across individuals. Philanthropic activity was defined by the decision to donate a \$5.00 monetary incentive earned for participation in the study to the American Red Cross (ARC). We predict that participants who choose to give their money to the ARC will be subjectively happier than participants who keep the money for themselves, by choice or predetermined. Happiness was measured using Dr. Lyubomirsky's 4-item, Subjective Happiness Scale (SHS). The subject pool was composed of 100 undergraduate, male and female SUNY New Paltz students, between the ages of 18-25. Participants were recruited using a student email list. The first 100 individuals to reply to the email invitation were granted access to take part in the study. Using randomization, half of the participants were assigned to a fixed, non-donation condition; the other half of the participants were provided the option to donate their money. All participants had to complete the same 30-item questionnaire alleged to investigate "Daily Subjective Living", containing the embedded Subjective Happiness Scale. The composite perceived happiness scores will be analyzed using a one-way between groups ANOVA and t-tests. If this study yields statistically significant results, it can provide society as well as the field of research interested in philanthropy and/or induced affective states an empirical measure of the hedonic consequences of philanthropy.

THE EFFECT OF SHADOWING ON LETTER RECOGNITION

Eric Herskowitz (Psychology Department, undergraduate)

Faculty Mentor: Giordana Grossi (Psychology Department)

Past research has indicated that participants more accurately recognize letters in words than pseudowords (word superiority effect, WSE) and letters in pseudowords than nonwords (pseudoword superiority effect, PSE). These effects have been interpreted as reflecting familiarity with the words (WSE) and the orthography (PSE) of a language. However, orthography is inevitably linked to phonology. In order to clarify the nature of the PSE, we asked participants to perform a letter identification task with and without shadowing, a secondary task that interferes with the phonological recoding of written material in working memory. Participants were asked to identify letters in four-letter strings (words, pseudowords, and nonwords) presented very briefly and then masked. The two task conditions (with and without shadowing) were counterbalanced across participants. It was predicted that if participants relied on a phonological representation of the stimuli, shadowing would disrupt performance with pseudowords (for which a semantic representation is not available) more than with words and nonwords, therefore impacting the superiority effects. The results showed that, while shadowing disrupted participants' performance, the decrease in performance was similar across the stimuli. That is, shadowing did not affect the two superiority effects. The results suggest that the PSE mainly reflects orthographic processing.

WHEN INTEREST AIDS VS. HINDERS MASTERY-ORIENTED ST

Brenna Fearey (Psychology, undergraduate)

Faculty Mentor: Corwin Senko (Psychology)

Achievement motivation theory compares two goals that people pursue in achievement situations: mastery goals, which focus on learning and developing ability, and performance goals, which focus on outperforming peers and demonstrating ability. The general hypothesis has always been that mastery goals produce more benefits to students' achievement, interest in the course material, and so forth. Yet the research, surprisingly, instead shows that performance goals tend more than mastery goals to aid students' achievement. One hypothesis is that mastery-oriented students pursue their own learning agenda: they study the interesting material with vigor but under-preparing for the duller material. The results of the study being followed up (Wolfe 09) instead showed that mastery students spent less time studying the interesting topics, and thus performed worse on quiz questions about those topics. One possible explanation for is that they felt pressured to cover all the material, and that they were deluded by their high interest in the fun topics to believe that they understand the content better than they really did. This fits other research on interest and overconfidence. In short, the time pressure may have prevented them from pursuing their own learning agenda. In developing the study, we have created a novel learning tutorial from which the participants will be tested. Pilot data have been collected and further data are expected by the end of the semester.

CONFLICT RESOLUTION IN ADOLESCENT RELATIONSHIPS

Alicia Trapini (Psychology, undergraduate)

Faculty Mentor: Kathleen Tillman (Psychology)

This project is based on an independent study project that I was a part of for one year. The independent study focused on creating and implementing a research study to analyze conflict resolution in adolescent dating relationships. Here I will provide an overview of the existing current literature on the subject and then I will also explain the study's methodology and any implications for future research on this topic.

DOMESTIC VIOLENCE IN INDIA: COMMUNITY AND AUTONOMY

Darian Pucciarelli (Sociology, undergraduate)

Faculty Mentor: Sunita Bose (Sociology)

Violence against women in India is a pervasive problem that cuts across caste and class. Feminist theory points to patriarchal norms and values that condone control and chastisement of women as a major reason for domestic abuse. While there exists a large body of work on domestic abuse in India, much of the research tends to be regional and descriptive in nature. In our study we use data from the National Family Health Survey conducted in India between 2005 and 2006 to investigate the impact of community and individual level characteristics on domestic violence. The use of hierarchical multilevel modeling (HLM) allows us to separate collective norms from individual norms and values. In our research we hypothesize that women residing in communities with a high tolerance for wife beating and low tolerance for personal autonomy for women are most likely to be victims of spousal abuse. Moreover, we argue that in community contexts where patriarchal values prevail, conflict over traditional gender roles should be more likely to result in serious wife battering. Thus, we also look at the interaction between individual attitude and collective norms as a predictor of domestic abuse.

WOMEN IN LATIN AMERICAN CINEMA

Alma Santana (Spanish /Latin American Studies, undergraduate)

Faculty Mentor: Ligia Aldana (Foreign Languages)

This study begins by examining two key points in contemporary Latin American film: the most important aspects of its history, paying special attention to its Golden Era, the development of Mexican, Argentinean, and Cuban film industry, offering graphics and charts that clearly delineate the changes that Latin American Cinema has undergone in these countries. Based on this data, I examine the evolution of the female character in representative films from the former national cinemas: *Cecilia* (1981), *Camila* (1984), *El retrato de Teresa* (1979), *La historia oficial* (1985), *Danzon* (1992) and *Dona Herlinda and her son* (1985). Through this analysis, I show how these contemporary filmic texts contest the way in which classical Latin American cinema portrayed women, suverting the dichotomies embedded in the fixed gendered roles such as the virtuous passive wife/femme fatale, the virgin/whore, the virtuous suffering mother/the bad mother and the seduced dishonored/abandoned girl. Moreover, my analysis underlines how the female character has meta-morphed into a fighter in a crisis, lives alternate life styles, freely expresses her sexuality, is unashamed of a dysfunctional family and makes her own choices even if these choices go against a conventional patriarchal society. In addition, my research explores how contemporary historical film expose the true personality of oppressed women, who have fought, loved, and died to make a stand for what they believe in.

THEATRICAL HAIR & MAKEUP DESIGN FOR METAMORPHOSES

Rachael Brandt (Theatre Arts, undergraduate)

Faculty Mentor: Andrea Varga (Theatre Arts)

The purpose for my creative research was to develop a better understanding of theatrical makeup, and the process of designing for a production. Each production has its own challenges and *Metamorphoses* by Mary Zimmerman utilizes water in the staging. This factor made it clear that the makeup had to be waterproof. My challenge was to transform a few actors into many characters quickly, and make the hair and makeup survive getting wet. To carry out this project I started by attending design meetings and collaborating with the costume designer. I conducted research and compiled images to create collages, leading to hair and makeup sketches which both the costume designer and director approved. Additionally, I did research on how to waterproof makeup and found a product by MakeUpForEver that proved to be perfect for my designs and the production. The outcome of this project was a hair and makeup design that complemented the costuming and conveyed a sense of character for each performer. Designing hair and makeup for *Metamorphoses* gave me detailed insight into a major design aspect of a production that is often overlooked. As an aspiring director, I realize that many directors also work as designers in many aspects. A good director needs to have a vision for the production as a whole and be able to professionally and artistically communicate their ideas to the production team. This project enhanced my understanding of the design process through a hands-on experience.

THE IRISH AND BLACKFACE MINSTRELSY

Annette Storckman (Theater Arts, Creative writing, undergraduate)

Faculty Mentor: Anita Gonzalez (Theater Arts)

The purpose of this study was to research the impact of blackface Minstrelsy socially upon the Irish. We wanted to research the social impact of theater, especially for the Irish because of the incredible oppression put upon them politically and through entertainment media. The dynamic between the English-Africans and the Irish was also most intriguing as they were both groups who were at the bottom of the social ladder. To research, we used books on Irish caricatures, racism in Ireland, the history of African relations in Europe, and many books on blackface Minstrelsy. We also collaborated with James Frieze with Liverpool Trading. In this research we were able to find historical motivations and reasons for stigmas. In our research we found that blackface Minstrelsy played the largest role in the attaining of status for the Irish in England. Also, we found that minstrelsy began the assimilation process for Africans because they became so present in mainstream entertainment. We, in the end, explored the social and political impact of entertainment and theater, and found that it is indeed a powerful tool.

TRANSGENDER CHILDHOOD IN PRINT JOURNALISM

Sarah Ruth Lindner (Women Studies, undergraduate)

Faculty Mentor: Karl Bryant (Sociology/Women Studies)

This project reports on research on the emergence of what can be argued is a new social subjectivity, the Transgender Child. A large body of scholarly and popular knowledge concerning gender variant children has long existed, in domains as varied as medicine, law, literature, and popular culture. Much of the existing research and clinical work on gender variant children has thus concerned itself with specifying the kind of "disorder" they exhibit, and developing treatment rationales and protocols for effecting change. More recently, affirmative models of childhood gender variance have begun to be developed, and argue that gender variant children should be valued and protected instead of pathologized and treated. In these (and other) models, there has been increasing visibility of and discussion about children who are deemed transgender - that is, children who express cross-gender identities and behaviors. Discussions of transgender children have appeared in a variety of news, news-light, and popular culture representations. Whereas Transgender Childhood has largely appeared as part of a project of valuing and supporting gender variant children, the category carries with it a broad range of possible effects, including the expectation of a relatively fixed developmental trajectory and other normalizing tendencies.

SPRING 2010 AYURE AWARDS

Varun Talanki, Biology, 2012 (Preeti Dhar, Chemistry) Synthesis and stability/solubility studies on (1S,2S,7R,9S) and (1R,2R,7S,9R)-6-Oxo-5-phenyl-4-thioxo-2,10,10 trimethyl-3,5 diazatricyclo[7.1.1.0^{2,7}]-undecane

Brenna Fearey, Psychology, 2011 (Corwin Senko, Psychology) When Interest Aids vs. Hinders Mastery-Oriented Students' Achievement

Molly Duguid, Marketing, 2011 (Chih-Yang Tsai, Business) Workflow of Doctors Rounds and its impact on quality

Sean Murphy, English, 2011 (Pauline Uchmanowicz, English) Pattern Language: Reading Contemporary Comics

Annette Storckman, Theatre Arts, Performance, 2012 (Anita Gonzalez, Theatre Arts) Liverpool Trading

FALL 2009 AYURE AWARDS

Sarah Ruth Lindner, Women's Studies, 2010 (Karl Bryant, Sociology and Women's Studies) Tracking the Emergence of a New Social Subjectivity: The Case of Transgender Childhood

Lauren Goldblum, BFA with emphasis in Graphic Design, 2009 (Anne Galperin, Art) Warhol Photography Exhibition Catalogue design

Dana Glover, Visual Arts and Art History, 2010 (Brian Wallace, Dorsky Museum) Warhol Photography Exhibition Presentation

Lauren Levine, Art History, 2010 (Reva Wolf, Art History) Andy Warhol: Private and Public in 151 Photographs

Rebecca Longley, Art Education, 2010 (Margaret Johnson, Art Department) Art Teachers All Around: An Electronic Project (Wiki) to Increase Communication and Collaboration Among Art Teachers and Art Education Majors

Xia Weng, Chemistry, 2011 (Pamela St. John, Chemistry) Fluorescence Assay for Receptor-ligand Binding

Rachael Brandt, Theatre Arts, 2012 (Andrea Varga, Theatre Arts) Theatrical Hair and Makeup Design for Metamorphoses

Kathleen Fox and Heather Slivko-Bathurst, Anthropology/Black Studies, Sociology, 2011 (Benjamin Junge, Anthropology) Color Matters: Contemporary Understandings of Race/Ethnicity in the Hudson Valley

2009 SURE AWARDS

Michael Wengen, Chemistry, 2011 (Megan Ferguson, Chemistry) Structure and function of a yellow pigment produced by host-independent *Bdellovibrio bacteriovorus*

Hope Mary Mahon History, 2010 (Katherine L. French, History) Material Culture and Servant-Employer Relations in Late-Medieval London

Darian Pucciarelli, Sociology and Political Science, 2010 (Sunita Bose, Sociology) Violence against women in India: The role of female status and community norms

Michael Pianka, Geography, December 2009 (Jo Margaret Mano, Geography) Mapping with GIS at the Micro-scale: Historic Huguenot Street

David Gorovoy, Biology, 2010 (Aaron Haselton, Biology & Preeti Dhar, Chemistry) Investigation into the repellent activities of oxygenated alpha-Pinene derivatives against the house fly, *Musca domestica*.

Alison Stevens BFA Photography Major, Journalism Minor, 2010 (James Fossett, Art) Changes: A Series of Short Stop Motion Animations and Video.

Kenneth Deegan, Geography, 2010 (John I. Sharp, Geography) Reporting Truth Claims at the Metropolitan Scale: Public Stadium Financing and Economic Development

Victoria Nichols, Anthropology, 2010 (Kenneth C. Nystrom, Anthropology) Dental health of an early 19th century skeletal sample from Newburgh, New York.

Morgan Anderson, Sociology/Spanish, 2010 (Eve Waltermaurer, Sociology) A Historical Content Analysis of Fiction Media's Portrayal of Violence

TRAVEL AWARDS

Michael Marone, Kathleen Fox, and Heather Slivko-Bathurst 2010 National Conference on Undergraduate Research, Missoula, MT

Sarah Ruth Lindner (Women's Studies, '10) Tracking the Emergence of a New Social Justice: The Case of "Transgender Childhood" at the Pacific Sociological Association, Oakland, CA.

Dairan Pucciarelli (Sociology, '10) Violence Against Women in India; the Impact of Community and Autonomy at the Eastern Sociological Society Annual Meeting, Boston MA.

Nichols, Victoria (Anthropology, '10) Dental Health of a 19th Century Skeletal Sample from the Mid-Hudson Valley at the American Association of Physical Anthropologists, Albuquerque, NM.

Rachael Brandt (Theatre Arts, '12) Theatrical Hair and Makeup Design for Metamorphoses at the United States Institute for Theatre Technology, Kansas City, MO.

Jordan Sumliner (Chemistry, '10) Ruthenium η^2 -ketoiminate complexes: Bifunctional catalysts for transfer hydrogenation? 238th American Chemical Society National Meeting Washington, DC.



2009 NCUR Awardees in La Crosse, WI